



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 21

[Docket No. FAA-2018-0860]

Primary Category Airworthiness Design Standards; Vertical Aviation Technologies (VAT) Model S-52L Rotorcraft

AGENCY: Federal Aviation Administration, DOT.

ACTION: Issuance of final airworthiness design standards.

SUMMARY: These airworthiness design standards are issued to Vertical Aviation Technologies (VAT) for certification of the Model S-52L rotorcraft under the regulations for primary category aircraft.

DATES: These airworthiness design standards are effective *[Insert date 30 days after date of publication in the Federal Register]*.

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SUPPLEMENTARY INFORMATION: Any person may obtain a copy of this information by contacting the person named above under **FOR FURTHER INFORMATION CONTACT**.

Background

The primary category for aircraft was created specifically for the simple, low performance personal aircraft. Section 21.17(f) provides a means for applicants to propose airworthiness standards for their particular primary category aircraft. The FAA procedure establishing appropriate airworthiness standards includes reviewing and possibly revising the applicants' proposal, publication of the submittal in the Federal Register for public review and comment, and addressing the comments. After all necessary revisions, the standards are published as approved FAA airworthiness standards.

Comments

Proposed Primary Category Airworthiness Design Standards; Vertical Aviation Technologies (VAT) Model S-52L rotorcraft was published in the *Federal Register* on September 26, 2018 (83 FR 48574). No comments were received, and the airworthiness design standards are adopted as proposed.

Applicability

These airworthiness design standards under the primary category rule are applicable to the VAT Model S-52L rotorcraft. Should VAT wish to apply these airworthiness design standards to other rotorcraft models, VAT must submit a new airworthiness design standard application under the primary rule category.

Conclusion

This action affects only certain airworthiness design standards on the VAT Model S-52L rotorcraft. It is not a standard of general applicability and it affects only the applicant who applied to the FAA for approval of these features on the rotorcraft.

Citation

The authority citation for these airworthiness standards is as follows:

Authority: 49 U.S.C. 106(g), 40113 and 44701.

Final Airworthiness Standards for Acceptance Under the Primary Category

CAR 13 effective 03/5/1952 as follows:

13.0, 13.10, 13.11, 13.12, 13.13, 13.14, 13.16(a), 13.16(b), 13.16(d), 13.17, 13.18, 13.19, 13.20, 13.21, 13.100, 13.101, 13.102, 13.103, 13.104, 13.110, 13.111, 13.112, 13.113, 13.114, 13.115, 13.150, 13.151, 13.153, 13.155, 13.156, 13.157.

CAR 13 effective 05/16/1953 as follows:

13.1, 13.15, 13.152, 13.154.

14 CFR 33 through amendment 33-9 as follows:

33.4, Appendix A33.

14 CFR 33 through amendment 33-30 as follows:

33.7(b).

14 CFR 27 through amendment 27-0, except as noted below:

- 27.853 at amendment 27-37,
- 27.1351 at amendment 27-13,
- 27.1357 at amendment 27-13,
- 27.1529 at amendment 27-18,
- 27.561 is replaced with VAT.561,
- 27.785 is replaced with VAT.785.

14 CFR 27 through amendment 27-30 as follows:

27.952(a), 27.952(c), 27.952(f), 27.952(g).

14 CFR 27 through amendment 27-35 as follows:

27.975(b).

VAT.561 General:

(a) The rotorcraft, although it may be damaged in emergency landing conditions on land or water, must be designed as prescribed in this section to protect the occupants under those conditions.

(b) The structure must be designed to give each occupant every reasonable chance of escaping serious injury in a minor crash landing when--

(1) Proper use is made of seats, belts, and other safety design provisions;

(2) The wheels are retracted (where applicable); and

(3) The occupant experiences the following ultimate inertia forces relative to the surrounding structure:

(i) Upward—4.0g.

(ii) Forward--8.0g.

(iii) Sideward--8.0g.

(iv) Downward--12.0g.

(v) Rearward—4.0g.

(c) The supporting structure must be designed to restrain, under any ultimate inertial load up to those specified in this paragraph, any item of mass above and/or behind the crew and passenger compartment that could injure an occupant if it came loose in an emergency landing. Items of mass to be considered include, but are not limited to, rotors, transmissions, and engines. The items of mass must be restrained for the following ultimate inertial load factors:

- (1) Upward--1.5g.
- (2) Forward--4.0g.
- (3) Sideward--2.0g.
- (4) Downward--4.0g

VAT.785 Seats and berths:

- (a) The seats and berths, and their supporting structures, must be designed for loads resulting from the specified flight and landing conditions, including the emergency landing conditions of VAT.561.
- (b) The reactions from safety belts and harnesses must be considered.
- (c) Each pilot seat must be designed for the reactions resulting from the application of the pilot forces prescribed in Sec. 27.397.
- (d) The structural analysis and testing of the structures specified in paragraphs (a) through (c) may be simplified--
 - (1) By assuming that the critical load in each direction, as determined from the prescribed flight, ground, and emergency landing conditions, acts separately; or
 - (2) By using selected combinations of loads, if the required strength in the specified directions is proven.
- (e) Each occupant's seat must have a combined safety belt and shoulder harness with a single-point release. Each pilot's combined safety belt and shoulder harness must allow each pilot, when seated with safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. There must be a means to secure belts and harnesses, when not in use, to prevent interference with the operation of the rotorcraft and with rapid egress in an emergency.

(f) Each occupant must be protected from serious head injury by a safety belt plus a shoulder harness that will prevent the head from contacting any injurious object.

(g) The safety belt and shoulder harness must meet the static strength requirements specified by this rotorcraft type certification basis.

VAT.963 Fuel tanks: general:

Each flexible fuel tank bladder or liner must be approved or shown to be suitable for the particular application and must be puncture-resistant. Puncture resistance must be shown by meeting TSO-C80 paragraph 16.0 requirements using a minimum puncture force of 250 pounds.

14 CFR 36 through amendment 36-30 as follows:

- Subpart H

Issued in Ft Worth, Texas on December 12, 2018.

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